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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Masakazu Koizumi

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EXAMINER

GODENSCHWAGER, PETER F

ART UNIT

PAPER NUMBER

1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/533,910	Applicant(s) KOIZUMI ET AL.	
	Examiner PETER F. GODENSCHWAGER	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,6,8 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5,6,8 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 5,6 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/24/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's reply filed April 24, 2008 has been fully considered. Claims 1-4, 7, 9 and 10 are canceled, claims 5, 8, and 11 are amended, and claims 5, 6, 8, and 11-14 are pending.

Claim Objections

Claims 5, 6, and 8 are objected to because of the following informalities: The phrase "may contact" should be changed to "contacts", as corrosion prevention cannot be achieved unless the water and salt actually do contact the steam generating unit/atmospheric distillation column. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 5 and 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Shimura et al. (JP Pub. No. 2002-129366A, English translation relied upon) in view of Vercammen (US Pat. No. 7,279,089).

Shimura et al. teaches a method of adding 50-200mg/L (which overlaps the claimed 1-50 mg/L of claim 6) of an amine to water going to a boiler (feed water for a steam generating unit) ([0005], [0008] of English translation).

Shimura et al. does not teach that the amine is an amine of general formula (1) of claim 5. However, Vercammen teaches the use of choline, a compound of general formula (1) where R^1 , R^2 , and R^3 are methyl groups (hydrocarbon radicals with 1 carbon atom) and $n=2$, as a corrosion inhibitor for metals (1:9-23 and 2:63-3:10). Shimura et al. and Vercammen are analogous art because they are concerned with solving a problem of similar technical difficulty, namely the prevention of corrosion of metal surfaces by the quenching of corrosive acids with amines. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the choline of Vercammen with the method of Shimura et al. and would have been motivated to do so because Vercammen teaches that while other amines form a sticky solid when quenching acids, choline (the additive) does not (3:25-31).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Braden et al. (US Pat. No 5,965,785) in view of Vercammen (US Pat. No. 7,279,089).

Braden et al. teaches a process of adding amines to a liquid that comes in contact with an atmospheric pipestill tower (atmospheric distillation column) in an amount to keep the bulk water condensate (which condenses at the top of the distillation column) at a pH of 5.5-6.5 (1:14-24, 3:17-25, and 5:3-12).

Braden et al. does not teach the method where a compound of formula (1) is added. However, However, Vercammen teaches the use of choline, a compound of general formula (1) where R^1 , R^2 , and R^3 are methyl groups (hydrocarbon radicals with 1 carbon atom) and $n=2$, as a corrosion inhibitor for metals in oil refinery systems (1:9-23 and 2:63-3:10). Braden et al. and Vercammen are analogous art because they are concerned with the same field of endeavor,

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namely the prevention of corrosion in oil refinery process through the addition of amines. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the choline of Vercammen in the method of Braden et al. and would have been motivated to do so because Vercammen teaches that while other amines form a sticky solid when quenching acids, choline (the additive) does not (3:25-31).

Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Braden et al. (US Pat. No 5,965,785) in view of Vercammen (US Pat. No. 7,279,089).

Regarding Claim 11: Braden et al. teaches a process of adding amines to a liquid that comes in contact with an atmospheric pipestill tower (atmospheric distillation column) where the amine may be added to the crude oil coming into the tower (which is after the desalter, see Fig. 1) (Fig. 1, 1:14-24, 4:66-5:12).

Braden et al. does not teach the method where a compound of formula (1) is added. However, However, Vercammen teaches the use of choline, a compound of general formula (1) where R^1 , R^2 , and R^3 are methyl groups (hydrocarbon radicals with 1 carbon atom) and $n=2$, as a corrosion inhibitor for metals in oil refinery systems (1:9-23 and 2:63-3:10). Braden et al. and Vercammen are analogous art because they are concerned with the same field of endeavor, namely the prevention of corrosion in oil refinery process through the addition of amines. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the choline of Vercammen in the method of Braden et al. and would have been motivated to do so because Vercammen teaches that while other amines form a sticky solid when quenching acids, choline (the additive) does not (3:25-31).

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Regarding Claim 12: Braden et al. does not teach the method where the amine is kept at 0.1-5 times the amount of salt content in the oil. However, it is well known in the art to optimize result effective variables such as relative concentration of amine to salt in the crude oil distilling process (See MPEP 2144.05). At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the relative amount of amine to salt in the crude oil distillation process and would be motivated to do so because, as Braden et al. teaches, the salt is directly responsible for producing the corrosive acid in the process (2:21-26). Therefore, based on the level of corrosion resistance required, one would want to adjust the acid quenching compound (amine) accordingly.

Regarding Claims 13 and 14: Braden et al. further teach measuring the pH of the condensate (condensed water) and adjusting the amount of amine accordingly (6:43-58). Braden et al. specify a pH range for the water condensate of the overhead accumulator of 5-6.5 as being corrosion safe (6:53-58).

Response to Arguments

Applicant's arguments filed April 24, 2008 have been fully considered but they are not persuasive.

Regarding the arguments concerning the combination of Vercammen (US Pat. No. 7,279,0889) and Shimura et al. (JP Pub. No. 2002-129366A) particularly that Vercammen is solving a problem particular to the oil refinery industry, while Vercammen teaches specifically using a choline ammonium salt for neutralization of ammonium chloride or ammonium sulphates, the broad teaching that choline has advantages for quenching acids to prevent

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corrosion over other amines would be enough to suggest to one of ordinary skill in the art to use choline in place of an amine for such a purpose. Such advantages as taught by Vercammen include the fact that the choline ammonium salts do not form a sticky solid as opposed to amines, and also the product of the neutralization is not an acidic ammonium salt which by itself could also cause corrosion (2:35-45 and 3:25-28).

Regarding the arguments concerning the combination of Vercammen and Braden et al. (US Pat. No. 5,965,785), specifically the argument concerning unexpected results, it is not clear to which specific results Applicant is arguing are unexpected. Furthermore, Vercammen specifically teaches that the product of the neutralization of acid with choline hydroxide is not an acidic ammonium salt which by itself could also cause corrosion (2:35-45), therefore, that choline hydroxide behaves in such a way cannot be considered unexpected. While the argument concerning the unpredictability of amines is noted, specifically the failure of monoethanolamine and dimethylethanolamine to inhibit or neutralize hydrogen chloride, Vercammen specifically teaches that choline hydroxide performs the function that it is supposed to function, namely neutralization of acids, therefore, it would be predictable for choline hydroxide to effectively neutralize acids. In addition, the advantages suggested by Vercammen for using choline, including the fact that the choline ammonium salts do not form a sticky solid as opposed to amines, and also the product of the neutralization is not an acidic ammonium salt which by itself could also cause corrosion (2:35-45 and 3:25-28) would be enough to suggest to one of ordinary skill in the art that it would be effective.

The 35 USC 101/112 rejections of claims 5, 8, and 11, and the objection of claim 11 have been withdrawn in light of Applicant's amendment.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PFG

August 6, 2008

/Marc S. Zimmer/

Primary Examiner, Art Unit 1796